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Such in outline is the thesis of the writer, but a review cannot do justice to the virility of the style or to the charming badinage and incisive sarcasm that is directed against the family physician and physiological psychologist, who persist in subordinating reason from concepts to observation of a dead mechanism. One might, in way of criticism, point out that all of Professor Lasson's arguments are ultimately based upon the very kind of observations he condemns, except that his are less accurate and more superficial, and that the whole standpoint is one that has been held and rejected several times in the history of philosophy. But it seems more interesting and profitable to regard it as an instance of the inability of current thought to view a problem from more than one standpoint, and to be impatient of all facts and theories that cannot be subordinated to that aspect. Professor Lasson looks upon the achievements of science and asks : What of it as long as you do not see that what you call matter is not matter but spirit ? And the scientist retorts : I grant that matter may be spirit, but what does it amount to so long as you do not know what your spiritualized matter can do ? Neither will appreciate and so cannot use the results of the other.

W. B. PILLSBURY.

UNIVERSITY OF MICHIGAN.

Évolution individuelle et hérédité. Théorie de la variation quantitative. Bibliothèque Scientific International. PAR F. LEDANTEC. Paris, F. Alcan, 1898.—pp. 306.

In view of the many books written on the vexed subject of heredity, M. LeDantec does not pretend to present any new facts. The prime need is for a competent method, and here the author claims originality. As mathematicians 'deduce' the properties of a curve from the discussion of its equation under all the conditions that can present themselves, so assimilation, the one property that differentiates living from dead matter, can be symbolized in an equation, and by its discussion under all the conditions in which living beings find themselves the whole of general biology can be deduced. The author limits his deductions, however, to those that 'concern the question of heredity.'

The discussion is based on the physico-chemical, as distinguished from the vitalistic, theory of life. The cell proper is the life unit alike for unicellular and for multicellular organisms, and by that term is meant the living portions of the large whole commonly called the cell. Only the cell proper can, by chemical interaction with an appropriate environment, assimilate material and augment itself. The remainder, improperly conceived as included in the cell, *e. g.*, the envelope, may physically or even chemically affect the cell proper, but it is not alive, since it cannot assimilate, but depends on the cell for its own augmentation. Under appropriate conditions, cells continue self-identical, but, when some only of their component substances are starved or overfed, the cells vary in chemical makeup, either decaying or dying or growing in complexity and developing into the highly organized multicellular animals. It is only by understanding cells and their variations that development and heredity among higher animals can be understood.

Part I deals with isolated cells. Each is made up of a number of complex chemical substances ; and each may vary qualitatively, by loss of or addition to its substances, or, as is very much more frequent, quantitatively, by changes in the relative amounts of its substances. Qualitative differences are the basis of the main divisions of the animal kingdom, only the lesser but much more numerous subdivisions being founded on quantitative differences.

Part II, which covers nearly half the book, deduces the laws of individual development and heredity for multicellular organisms. When, as a result of variation, secretions are thrown off during chemical activity that hold together the many cells formed by rapid successive bipartitions, the first step is taken towards the formation of multicellular agglomerations. As an agglomeration attains considerable volume, the cells situated in the interior at some distance from the surface receive their scant and inappropriate nutrition through the surface cells, with the consequence that many of them die from starving, and many are transformed into substances that are not cells, though they are useful, *e. g.*, bones, walls of the circulatory canals and of organs, etc. Again, the cells that continue alive, being scattered throughout the mass, are subjected to various conditions, and undergo changes in different directions, forming the muscular, nervous, and other tissues capable of performing special functions.

Central in the author's thought is his argument for the inheritance of acquired characters among many-celled animals. Every, even the minutest, part of an adult animal is provided for in the initial or egg cell from which it develops, and a character acquired by an animal can be transmitted to its offspring only if the acquisition of the character appropriately changes the egg cell that grows into the offspring in question. Certain (confessedly hypothetical) chemical substances, present in the same proportions in every living cell of the animal body, are intimately associated with the body's structure and functions. During the embryonic period, these substances wholly determine morphological features in general and in detail. And when, later on, the structure is partly warped into new directions by novel functions necessitated by the outer environment, the morphological modifications thereby occasioned effect changes in the chemical substances mentioned, changes which restore the adjustment that must at each instant obtain between these substances and the animal structure. Further, these morphogenic substances, being chemically identical in all the cells of a given animal, the egg cells will take on the alteration, and individuals that develop from any of them will, when they reach the stage of development at which the structural change appeared in the parent, develop the same features in preserving the adjustment of structure to the chemical substances. This brief summary can, of course, give but an imperfect idea of the strength of the author's argument, but even as stated in full by him it is difficult to follow, obscure, as it seems to the present writer, at crucial points, and certainly very much in the air. Whether the present state of biology calls for bold hypotheses of broad scope, rather than for more cautious generalizations, is a question that cannot be mooted here.

The methodological purpose of Part III is to verify the author's theories by testing their competence to explain facts that offer difficulties to other theories. Among the facts discussed, are the minute appropriateness of the reactions of inexperienced newborn animals, the remarkably gradual improvement observable in this respect as the animal scale is ascended, embryological acceleration, and telegony, or the influence of the first male, which the author regards as an established fact. He discusses the ability of Weissmann's germ-plasm theory, Cope's diplogenesis theory, and Delage's theory of actual causes to explain these and other facts, and seeks to show that his own theory is more successful. Here the discussions are interesting, and the criticisms incisive and clear.

The author's style is good, if not fully up to the high French standard. And whether or not they approve his Cartesian program or accept his conclusions, philosophical readers will find in the book much that is instructive, and more that is suggestive. SIDNEY E. MEZES.

UNIVERSITY OF TEXAS.

Life, Death, and Immortality. With Kindred Essays. By WM. M. BRYANT, M.A., LL.D. New York, The Baker & Taylor Co., 1898.—pp. 450.

In accordance with a custom much in vogue at present among philosophical writers, the author has given to the present volume the title of the first essay, and has sought to preserve a degree of unity by grouping together a number of papers which treat of different aspects of a common theme. In the attempt to secure a real unity, the writer has been more successful than some others who have followed the same method. All the essays which are here brought together deal quite directly with the religious aspect of human nature. The three which succeed the opening essay may be characterized as discussions in the field of comparative religion. Buddhism and Mohammedanism are both compared, chiefly on their philosophical side, with Christianity. The remaining chapters deal in turn with 'The Natural History of Church Organization,' 'Non-Progressive Orthodoxy,' 'Miracles,' 'Christian Ethics,' and 'Eternity.' The last-named essay, which has previously appeared in booklet form, gives an interesting history of the author's religious and philosophical development. Although rejecting the traditional and non-progressive interpretation of Christianity, Dr. Bryant finds in Christian doctrine the essential elements of a rational view of the world and of human life, and attempts to reconstruct religious thought on idealistic lines.